

Serial Number: 08/800,266  
Inventor: Hanan Butnaru  
Att: Docket No. 33671.00005

63-1  
amended

positional change information of said object moving with said user and said baseline position of said user acquired by said data acquisition means; and

display means for presenting to said user a set of visual cues indicative of said relative positional change of said object moving with said user.

### REMARKS

#### The Changes

Independent claims 1, 15, and 30 have been amended to better reflect how the instant invention is different from the prior art. Specifically, independent claims 1, 15, and 30 have been amended to show that the baseline position, and positional change information are relevant only to the *user*, and not the apparatus within which the user travels (or which transports the user). However, the motion of the apparatus may be relevant if it moves along with the user, and thus, the orientation of the apparatus and the user coincide. This is specifically noted in Claim 30. While this difference has already been indicated to some degree in the claims as originally filed, changes have been made to enhance the consistency of the claim language and clarify the necessity of monitoring and indicating *user* positional changes. The specification has been modified to correct typographical errors and clarify this concept. No new matter has been added.

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The First Rejection (35 U.S.C. § 102):

Claims 1-2, 4, 11-13, 15-16, 18-22, and 29-30 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Furukawa (U.S. Patent No. 5,051,735). The applicant respectfully traverses the Examiner's rejection of these claims.

The Second Rejection (35 U.S.C. § 103):

Claims 3 and 17 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Furukawa in view of Odhner, et al. (U.S. Patent No. 5,613,022). Further, Claims 10 and 24 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Furukawa in view of Yang (U.S. Patent No. 5,729,366). Finally, Claims 9, 14, 23, and 26-28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Furukawa in view of Albrecht (U.S. Patent No. 5,138,555). The applicant respectfully traverses the Examiner's rejection of these claims.

Response to the Rejections:

As the Examiner notes, Furukawa teaches a heads-up display system comprising "orientation sensing means" which has the capability of "sensing a baseline position." However, all of the sensory input and display output is directed toward sensing the orientation of a vehicle, and displaying the predicted motion of the vehicle. See Furukawa,

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Column 1, lines 35-38; Column 3, lines 61-66; and Column 4, lines 4-60. These measurements and displays are irrelevant to the present invention.

More specifically, the Furukawa patent does not anticipate the limitations of the instant invention as claimed, namely, "orientation sensing means for providing positional change information *of a user*" with respect to a "baseline position *of said user*." Further, the Furukawa patent does not anticipate a "data acquisition means to acquire said positional change information *of a user*" and a "baseline position *of said user*" along with a data processing means for determination of a relative positional change "of said user" from a baseline position "*of said user*", based upon said positional change information *of said user* and said baseline position *of said user* acquired by said data acquisition means." Finally, Furukawa does not anticipate a display means for presenting to the user a set of visual cues indicative of the relative positional change "of said user." While it is possible that vehicle motion and user motion coincide, it isn't necessary. In fact, during abrupt maneuvers, it is likely not the case.

Thus, since Furukawa does not anticipate sensing, acquisition, processing, and display of *user* positional change information, claim 1 should be in condition for allowance. Further, dependent claims 2, 4, and 11-13 should also be in condition for allowance.

Furukawa does not anticipate a method of providing physical orientation information to a user comprising the steps claimed in the instant invention. This includes

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sensing a baseline position "of said user," sensing a positional change "of said user" from the baseline position "of said user," computing a relative amount of positional change "of said user" from the baseline position "of said user," and presenting the relative amount of positional change "of said user" as a series of visual cues to the user. Since these claim limitations are not anticipated by Furukawa, claim 15 should be in condition for allowance. Further, dependent claims 16, 18-22, and 29 should also be in condition for allowance.

Finally, Furukawa does not anticipate a system for providing visual orientation information to a user which includes the limitations set forth in claim 30. These include an orientation sensing means for providing positional change information of an object "moving with said user" with respect to a baseline position "of said user," a data acquisition means to acquire positional change information "of said user" and baseline position "of said user" from the orientation sensing means, data processing means to determine relative positional change of the object "moving with said user" from the baseline position "of said user" based upon the positional change information "of said object moving with said user" and the baseline position "of said user" acquired by the data acquisition means, and display means for presenting to the user a set of visual cues indicative of the relative positional change "of said object moving with said user." Thus, the limitations set forth in claim 30 are not anticipated by Furukawa, and claim 30 should be in condition for allowance.

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As an aid to further differentiation and clarification of the instant invention over Furukawa, it should be noted that claims 11, 12, 13, and 14 have been modified to indicate that it is the *relative* pitch, roll, and yaw *orientation* information that is indicated to the user with respect to his environment, and not such information with respect to a vehicle in which the user might be traveling. Further, it is not the *predicted* information which is important, but the actual information which is needed by the user to overcome the motion sickness and vertigo sensations induced by the lack of such orientation information. These claims specifically are limited to changes in the *user's* pitch, roll, and yaw, as filed.

Since Furukawa fails to anticipate several features of the instant invention as claimed, Claims 3, 9, 10, 14, 17, 23-24, and 26-28 should also be in condition for allowance because Odhner, et al., Yang, and Albrecht also do not anticipate these claimed elements. Further, Odhner, et al. does not teach the utilization of a magnetostrictive sensor, but rather, a magnetostrictive actuator. See Odhner, Column 5, lines 49-51. In addition, there is no teaching within Furukawa or Odhner to combine the elements of each reference to produce the instant invention. Similarly, while Yang does indeed disclose a heads-up display device, as noted by the Examiner, there is no teaching within Yang or Furukawa to combine the elements disclosed in each reference so as to produce the instant invention, as claimed. The Yang reference is relevant only with respect to a vehicle, and not a user's relative orientation with respect to the physical environment.

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Finally, Albrecht does not disclose the process of averaging video image signals, as noted by the Examiner. The process disclosed by Albrecht serves merely to predict a future "look angle direction" of a helmet device. Elevation information is sensed by the system, but not used to indicate the actual elevation of the pilot with respect to his environment. See Albrecht, Column 5, lines 27-55, Column 6, lines 27-46. Thus, Albrecht teaches concepts which are relevant to the position of the pilot's look angle, and which are irrelevant to the position of the pilot's body within the environment.

Conclusion:

Since Furukawa, Odhner, et al., Yang, and Albrecht fail to anticipate sensing, acquiring, processing, and display with respect to the baseline and relative positional change information for a user with respect to his environment, it is believed that Claims 1-30 are now in condition for allowance. Further, these claims should be in condition for allowance because there is no teaching to combine Furukawa with Odhner, et al., Yang, or Albrecht. The art made of record and proffered by the Examiner has been reviewed by the Applicant, but was not found to be as relevant as those references cited by the Examiner in her detailed remarks.

In view of the clarifications set forth above, and the Amendments to Claims 1, 11, 12, 13, 14, 15, and 30, the Applicant requests the Examiner to enter the Claims as amended and allow this Application to issue as a United States Patent. If the Examiner

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believes further limitations or changes are necessary to support allowance, a telephone conference is earnestly solicited. The Applicant appreciates the Examiner's kind consideration.

Respectfully submitted,  
JENKENS & GILCHRIST  
A Professional Corporation



Mark V. Muller  
Reg. No. 37,509  
Patent Attorney  
Tele: (Voice) (210) 246-5688  
(Facsimile) (210) 246-5999

**ALL CORRESPONDENCE SHOULD CONTINUE TO BE ADDRESSED TO:**

Mark V. Muller  
JENKENS & GILCHRIST, PC  
1445 Ross Avenue  
Suite 3200  
Dallas, Texas 75202-2799